

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 26 JUL 2005

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Applicant's or agent's file reference L80001215WO		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/CA2004/000606		International filing date (day/month/year) 22.04.2004	Priority date (day/month/year) 22.04.2003	
International Patent Classification (IPC) or national classification and IPC A01N43/16, A01N63/02				
Applicant BIOS AGRICULTURE INC. et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 7 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  22.02.2005		Date of completion of this report  25.07.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Klaver, J  Telephone No. +49 89 2399-8601		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/CA2004/000606

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1 - 6
Inventive step (IS)	Yes: Claims	
	No: Claims	1 - 6
Industrial applicability (IA)	Yes: Claims	1 - 6
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1). The subject-matter of claims 1 - 6 does not meet the criteria of Art. 33 (2) PCT since it is not novel with respect to the prior art:

- Agriculturally acceptable compositions comprising an effective amount of lipochitooligosaccharides (LCO's) have been disclosed in all documents cited in the International Search Report.

It is pointed out, that an intended purpose does not render a composition novel with respect to a composition essentially containing the same ingredients. It is evident from, e.g., Prithiviraj et al., 2003 (= D1), Atti et al., 2002 (= D2) and WO 01/26465 A1 (= D3), that the concentrations of LCO in the compositions of the prior art are in the same ranges as used in the present application. The subject-matter of composition claim 6 hence is not novel.

- D1 discloses on page 440, last paragraph: "In general, LCO-treated plants developed faster, flowered earlier and had more flowers than the controls (results not shown). At 15 days after seeding, plants treated with the various LCOs showed 40-100% bolting as compared to 20-14% in the controls."

This statement anticipates the use and method as defined by present claims 1 - 5: Claims 1 and 2 define the use of LCO or an LCO comprising composition for acceleration of flowering in a plant, claims 3 and 4 define the use of LCO or an LCO comprising composition for acceleration of flowering and fruiting or for increasing flower numbers and associated yields, whereas claim 5 defines a method for acceleration of flowering and/or fruiting by application of an LCO comprising composition to a plant.

None of these claims contain a feature which distinguishes its claimed subject-matter from these statements in D1, which obviously are based on performed, albeit unpublished, experiments.

Applicant essentially argues in his letter of 22.02.05, that this is a 'bald statement' not supported by any experimental evidence. In his view, it would not be possible to correlate

conclusions drawn in D1 with the experimental results.

This argument cannot be followed:

The baldness of a statement is not relevant for the plausibility of its contents or for the message it carries.

D1 itself discloses, that the conclusion regarding the observed accelerated and enhanced flowering are not based on the data as given in the publication itself but are based on unpublished results. This does not make the statement itself irrelevant or implausible, especially since this observation is fully in line with the results of the published experimental data which relate to increased emergence and improved germination. It thus may be considered a further illustration of the advantageous effects to be expected from application of LCO's to plants.

It is evident from D1, that before the priority date of the present application LCO's have been applied to plants and that this use resulted in an accelerated flowering and in increased flower yields. It furthermore does not require any special technical skills to execute the experiments mentioned in this particular passage of D1.

The subject-matter of claims 1 - 5 hence has been made available to the public by D1 and thus is not novel (Art. 33 (2) PCT).

- D2 discloses, that LCO treatment of soybeans under medium water stress conditions results in an increase of flower induction, pod development and plant height, which effects are not clearly and unequivocally distinguished from the terms 'acceleration of flowering' and 'increasing flower numbers and/or associated yield' as used in present claims 1 - 5.

Applicant argues (letter of 22.02.05), that the positive effects of LCO only have been demonstrated in one of three experiments under water stress conditions and that these experiments do not give any indication on effects under normal growth conditions. The latter statement is not relevant, since the present claims are not restricted to normal growth conditions. It is even derivable from the description that such conditions are envisaged by the present claims ((amended) page 5, last paragraph).

In the absence of the full text of D2, it furthermore cannot be established what the precise content of this disclosure is. On the basis of the published abstract, however, one can only conclude, that it was known in the art, that application of LCO to soybeans under medium water stress conditions resulted in the same effects as encompassed by the use and methods as defined by present claims 1 - 5. Said claims hence are not novel with respect to D2.

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REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

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- D3 discloses on page 19, line 1 - 7, that leaf application of LCO to plants results in more leaf area and dry weight and, in the case of soybeans, resulted in increased branch number, leaf area, pod number, plant dry matter and grain yield. It is further expressis verbis disclosed in D3, that application of LCO will result in an increased productivity in a wide range of crops (D3: page 19, line 6/7). Example 5 furthermore discloses, that LCO treatment of soybeans resulted in increased growth and an increased number of pod clusters per plant, number of pods and total number of seeds per plant (D3: page 27, last paragraph).

The effects as mentioned in D3 are within the scope of the uses and methods as defined by present claims 3 - 5, as can be seen from (amended) page 5, last paragraph, of the present description where it is stated: "The uses (...) and methods of the present invention (...) include initiation of early bud and/or flowering and/or increased flowering (...), leading to earlier fruit development and/or enhanced plant maturity and/or plant growth and yield (...)".

D3 hence anticipates the novelty of claims 3 - 5, at least insofar as these claims define the use of LCO for increasing flower numbers and associated yield. The fact, that the examples of D3 do not specifically disclose the exact change in the numbers of flowers is not relevant in view of the disclosures of D3 as cited here above.

The presently claimed uses, methods and compositions as defined by claims 1 - 6 are not novel (Art. 33 (2) PCT).

2). Even if the subject-matter of the claims would be considered novel, it cannot be seen which particular technical problem has been solved by the present application which was not already solved by the prior art. It is obvious for the skilled artisan trying to find further advantageous applications for LCO's to test the observations made in D1 (page 440, last paragraph) on the list of plants as disclosed in D3. Such a test would inevitably result in the claimed uses and methods as defined by present claims 1 - 5.

Claims 1 - 5, even if considered novel, hence are not considered to be based on an inventive step and do not meet the criteria set forth in Art. 33 (3) PCT.

3). The industrial applicability is evident (Art. 33 (3) PCT).